

**What is claimed is :**

1.A ball screw with cooling means comprising:

a. a screw bolt having a spirally threaded groove formed around the outer surface thereof;

5        b. a hollow screw nut to be sleeved over said screw bolt also having another spirally threaded groove corresponding to said former groove being formed around the inner surface thereof;

         c. a plurality of rolling balls interposed between said two grooves that causing said screw bolt and said screw nut able to  
10       rotate with each other; and

         d. an outer cover covering said screw nut such that a cavity being formed therebetween for a cooling agent to flow through thereby reducing the temperature of said screw nut.

         2.The ball screw of claim 1, wherein several leak proof  
15       elements are provided between said screw nut and said outer cover for preventing leakage of the cooling agent.

         3.The ball screw of claim 2, wherein said leak proof element is an O-ring.

         4.The ball screw of claim 1, wherein an enlarged portion of  
20       said cavity is made between said screw nut and said outer cover.

         5.The ball screw of claim 4, wherein said enlarged portion is formed by paring a part of said screw nut into a planar shape.

         6.The ball screw of claim 4, wherein said enlarged portion is formed by paring a part of said screw nut into a curved surface.

25       7.The ball screw of claim 1, wherein a guiding tube for guiding

flow of the cooling agent is installed in said cavity.

8.The ball screw of claim 7, wherein a heat conducting glue is filled between said guiding tube and said screw nut.

9.The ball screw of claim 1, wherein an entrance pipe with an opening and an exit pipe with an opening are formed in said screw nut for circulation of the cooling agent.

10